

Network Trouble Shooting Lab

Pull up a command prompt. Click start->all programs->accessories->command prompt and ping the following sites what IP addresses do you get and what is the average round trip time.

Enter: ping <address>

	IP Address	Average round trip in milli-seconds
www.lego.com	171.20.53.203	60.23ms
www.majong.com	72.52.4.91	27.1ms
www.google.com	140.197.248.110	2.32ms
www.facebook.com	66.220.158.68	74.32ms
www.walmart.com	161.170.248.20	Request time out!!

Why would PING function be useful in troubleshooting a network problem? What are the limitations of PING?

I have plenty of real world experience with Ping across multiple operating systems. I often utilize this tool at work – it is great for checking whether or not our build machine (RHEL) is alive or not! It can also be used to check socket addresses and latency.

Some limitations, as seen when “pinging” Walmart.com – Some servers have protocols in place to ignore these pings aka disable ICMP echo responses. It makes sense... why waste resources on sending back responses if you're a site like Walmart.com? Walmart.com will never go down, there's no reason to ping it!

Now use trace route to find the hops and time it takes to get to the following websites. It should be noted that the command in Linux is TRACEROUTE but in Windows it is TRACERT. An example of the command you enter at the command prompt for this exercise would be:

TRACERT www.weber.edu

Enter: tracert <address>

	# of hops	Time
www.lego.com	19	60.112ms
www.majong.com	9	27.75ms
www.google.com	6	3.02ms
www.facebook.com	12	74ms
www.walmart.com	16	68ms

Why would trace route be helpful to you in troubleshooting a network problem? How would this information differ from what you would get if you did PING?

Tracing could definitely be helpful troubleshooting network problems. When the packet is relayed across servers, and one of them is down or being slow, you'd be able to easily pinpoint the problem. Ping on the other hand doesn't show where/how the packet is getting routed – it's lacking the additional information that traceroute returns.

We will not switch from a command line trace route to a graphical trace route. This site is hosted on a server outside of your location. It does a trace route from the server to you and a second trace route from the server to the desired destination. It gives you a nice interface to see where it is going. Now go to: <http://www.yougetsignal.com/tools/visual-tracert/>
And do a proxy trace route of the following addresses.

	# of Hops	Time	Miles traveled	Final Geographic location
www.lego.com	24	28.5 SECONDS	9,150	Billund, Denmark
www.majong.com	16	26.2 SECONDS	4,016	Hollywood, FL
www.google.com	16	25.9 SECONDS	2,484	Bellevue, WA
www.facebook.com	21	30 SECONDS	1,465	Marina Del Ray, CA
www.walmart.com	23	41.2 SECONDS	3,945	White Plains, NY

Why are the numbers of hops different when comparing trace route and proxy trace? What are your thoughts of the visual pattern of where the signals went around the country and world?

The numbers are different because the proxy trace starts from your current network and then makes its way to YouGetSignal.com. Getting to YouGetSignal.com could take n number of hops where as a host trace starts directly from YouGetSignal.com. The proxy trace will ALWAYS have more hops.

I think it's incredible how quickly information can bounce around our continent, and in the case of lego.com, across the ocean to Denmark! It really makes me wonder how much faster things would be if everything we ever needed to access was in the data center next door!